

Message Information

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From David Dickson <David@alaskawild.org>
To LisaP Jackson/DC/USEPA/US@EPA
cc
Subject Petition to require individual permitting processes for ocean discharges from Shell's Beaufort and Chukchi Sea Exploration Drilling Plans

Message Body

VIA EMAIL AND MAIL

January 19, 2010

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RE: Petition Pursuant to 40 C.F.R. § 122.28(b)(3) to require individual permitting processes for ocean discharges from Shell's Beaufort and Chukchi Sea Exploration Drilling Plans

Dear Administrator Jackson, Regional Administrator Pirzadeh, and Director Combes:

The undersigned organizations petition the Environmental Protection Agency (EPA) to require individual National Pollution Discharge Elimination System (NPDES) permits under the Clean Water Act (CWA), 33 U.S.C. § 1342, for Shell Offshore Inc. and Shell Gulf of Mexico Inc.'s (collectively "Shell") plans to discharge waste into the Beaufort and Chukchi Seas in association with their 2010 Outer Continental Shelf Lease Exploration Plans.

As a general matter, Shell's proposed large scale drilling operations in the Arctic Ocean deserve careful environmental review by the responsible federal agencies, including EPA. Shell's 2010 exploration plans involve drilling in both the Beaufort and Chukchi Seas. Shell proposes to conduct large-scale industrial activities in the Arctic Ocean with potentially significant impacts to the fragile and changing Arctic environment and subsistence way of life. In addition, Shell's proposed 2010 drilling is part of its planned multi-year, multi-sea drilling program in the Arctic Ocean. Whether alone or in the context of Shell's larger Arctic drilling program, Shell's proposed 2010 drilling in the Chukchi and Beaufort Seas may pose potentially significant effects on wildlife and people in the region.

This petition seeks action from EPA on one aspect of federal agency review and permitting for these projects—permitting of discharges from the drilling vessels under the Clean Water Act. On May 7, 2009, Shell submitted Notices of Intent (NOI) requesting coverage under general permit AKG280000 for discharges into the Beaufort Sea from exploratory drilling on Lease Numbers OCS-Y-1941, Lease Block 6610 and OCS-Y-1805, Lease Block 6658. On May 22, 2009, Shell submitted NOIs seeking coverage under the same general permit for discharges into the Chukchi from drilling activities on Lease Numbers OCS-Y-2280, Lease Block 6764, OCS-Y-2267, Lease Block 6714, OCS-Y-2321, Lease Block 6912, OCS-Y-2111, Lease Block 6864, and OCS-Y-2142, Lease Block 7007. Shell's proposed discharge volumes far exceed those considered in the Ocean Discharge Criteria Evaluation (OCDE) EPA prepared in association with the general permit and are more appropriately regulated by individual permits.

EPA regulations on general permits provide that the EPA may require any discharger under a general permit to obtain an individual permit and further provides that any interested person may petition the EPA to take action to require an individual permit. 40 C.F.R. § 122.28(b)(3). The regulations also enumerate the circumstances in which individual permits are more appropriate. In particular, EPA should require individual permits when "[t]he discharge(s) is a significant contributor of pollutants." *Id.* § 122.28(b)(3)(G). To determine whether a discharge is significant, EPA should consider, among other factors, "(1) The location of the discharge with respect to waters of the United States; (2) The size of the discharge; [and] (3) The quantity and nature of the pollutants discharged to waters of the United States" *Id.*

Pursuant to these regulations, EPA should act to regulate the discharges from Shell's proposed Arctic Ocean exploration drilling activities under individual NPDES permits. Shell's proposed discharges represent a significant contribution of pollutants into the Arctic waters, much larger than EPA has previously considered under the general permit. The proposed discharges include toxins which would affect pristine waters that provide habitat for endangered species and a vital source of subsistence for the Native communities of Alaska's North Slope. The Beaufort Sea discharges will take place in the bowhead whale migration corridor, in important polar bear

habitat, and in a traditional subsistence hunting area. The Chukchi Sea, the other site of proposed discharges, is among the most biologically rich oceans of the Arctic. The area provides habitat to a diverse population of marine mammals including bowhead, humpback, fin, grey, beluga, orca, and minke whales, polar bears, pacific walrus, and numerous seals.

The primary reason EPA should regulate the proposed discharges pursuant to an individual NPDES permit is that the volumes of discharge proposed by Shell significantly exceed those EPA considered when it prepared the Ocean Discharge Criteria Evaluation for the general permit at issue. EPA prepared the ODCE to consider whether the proposed general permit complied with EPA's Ocean Discharge Criteria for preventing unreasonable degradation of ocean waters and relied on the analysis in the ODCE to reach its conclusion that activities under the general permit would not cause unreasonable degradation. In the ODCE, EPA estimated that over the five-year drilling period covered by the general permit 8,085 bbl of muds and 50,160 bbl of cuttings would be discharged into the Beaufort Sea and 2,260 bbl of muds and 7,880 bbls of cuttings would be discharged into the Chukchi. ODCE at 2-9. Many aspects of Shell's proposed drilling discharges, however, significantly exceed the scope of EPA's analysis at the time it issued the general permit and therefore EPA's conclusions about impact from the general permit cannot be fairly applied to the discharges proposed by Shell. Only an individual permit analysis will allow EPA to assure these large discharges will meet CWA requirements. In such a process, EPA could also consider available options that could eliminate these discharges such as cuttings reinjection technology or transportation to onshore disposal facilities.

First, the thermal discharge from cooling water alone entails a significant contribution of pollutants warranting an individual permit. Shell proposes to emit nine times the amount of cooling water compared to the amount that was analyzed in the ODCE. The ODCE estimated that cooling-water discharges would be less than 210,000 gallons (5,000 barrels) per day for drilling operations. ODCE at 2-15. Shell's notice of intent states that it will release 1,890,000 gallons (45,000 barrels) per day for each well when drilling. Chukchi NOI at 8; Beaufort NOI Table 1.

The effects of discharges of large quantities of hot water – particularly when the water contains biocides, as Shell's cooling water will – on benthic species and fish are a real concern. As the National Oceanic and Atmospheric Administration Fisheries Management Plan for the Arctic states:

Thermal effluents in inshore habitat can cause severe problems by directly altering the benthic community or killing marine organisms, especially larval fish. Temperature influences biochemical processes of the environment and the behavior (e.g., migration) and physiology (e.g., metabolism) of marine organisms. Further, the proper functioning of sensitive areas may be affected by the action of intakes as selective predators, resulting in cascading negative consequences as observed by the overexploitation of local fish populations in coral-reef fish communities.

Fisheries Management Plan for Fish Resources of the Arctic Management Area (August 2009) at 92 (internal citations omitted).

Shell also proposes in the Chukchi to discharge almost twice as much drilling mud in a single year of drilling as the EPA estimated would be discharged over the five-year general permit period. Shell's notice of intent states that it will discharge 185,010 gallons (4,405 barrels) of drilling fluids in a year (regardless of the number of wells it drills, because it will re-use the fluids). Chukchi Notice of Intent at 8. In the ODCE underlying EPA's general permit, EPA estimated and examined the effects of the discharge from all Chukchi Sea lease sales in the five-year general permit period of 94,920 gallons (2,260 barrels) of drilling fluid. ODCE at 2-9 – 2-10. The effects on fish, benthic organisms, and other aquatic life of the discharge of this large amount of drilling fluids all at once has not been adequately analyzed by EPA. Accordingly, it would be arbitrary for EPA to conclude that the discharge will not cause unreasonable degradation to water quality.

The large volume of discharges proposed here is especially troubling because Shell's proposed discharges will contain significant toxins. The proposed discharges include drilling muds (fluids) and drilling cuttings, sanitary and domestic wastes, desalination unit wastes, test fluids, deck drainage, blowout preventer fluids, uncontaminated ballast and bilge water, excess cement slurry, cooling water, fire control system test water, and excess cement slurry at the sea floor. The biggest discharge of concern is drilling mud or fluid. In addition to liquid, drilling muds usually contain bentonite clay that increases the viscosity and alters the density of the fluid. Drilling muds may also contain additional additives that alter the properties of the fluid. The EPA's Ocean Discharge Criteria Evaluation lists the following potential additives:

- Weighting materials, primarily barite (barium sulfate), may be used to increase the density of the mud in order to equilibrate the pressure between the wellbore and formation when drilling through particularly pressurized zones. Hematite (Fe_2O_3) sometimes is used as a weighting agent in oil-based muds (Souders, 1998).
- Corrosion inhibitors such as iron oxide, aluminum bisulfate, zinc carbonate, and zinc chromate protect pipes and other metallic components from acidic compounds encountered in the formation.
- Dispersants, including iron lignosulfonates, break up solid clusters into small particles so they can be carried by the fluid.
- Flocculants, primarily acrylic polymers, cause suspended particles to group together so they can be removed from the fluid at the surface.
- Surfactants, like fatty acids and soaps, defoam and emulsify the mud.
- Biocides, typically organic amines, chlorophenols, or formaldehydes, kill bacteria that may produce toxic hydrogen sulfide gas.
- Fluid loss reducers include starch and organic polymers and limit the loss of drilling mud to under-pressurized or high-permeability formations (USEPA, 1987).

ODCE at 2-3.

The toxins present in these discharges can bioaccumulate affecting marine mammals at the top of the food chain such as toothed whales and polar bear. See U.S. Fish and Wildlife Service, Programmatic Biological Opinion for Polar Bears (*Ursus maritimus*) on Beaufort Sea Incidental

Take Regulations (June 2008) at 32 (noting that mercury levels in SBS polar bear population are already near biological threshold and stating “contaminant exposure in combination with other factors, such as loss of sea ice habitat and decreased prey availability, which have the potential to influence the recruitment or survival rates, could ultimately have population-level effects.”); National Marine Fisheries Service, Biological Opinion, Oil and Gas Leasing and Exploration Activities in the U.S. Beaufort and Chukchi Seas, Alaska; and Authorization of Small Takes Under the Marine Mammal Protection Act (July 2008) at 39 (“it is reasonable to assume that fin and humpback whales, as large mammals at a high trophic level, are susceptible to the bioaccumulation of organochlorine and metal contaminants through their regular diet of fish and euphausiids.”). The discharges, which contain heavy metals including lead and mercury, can create a blanket of mud affecting the benthic community. *See* ODCE at 3-2. In the Chukchi, walrus and grey whales feed on this community and could be harmed by the presence of toxins and associated decline in the benthic community. “Laboratory studies on recruitment and development of benthic communities suggest that drilling mud and barite can affect recruitment and alter benthic communities or depress abundances.” *See id.* at 3-21.

Finally, Shell proposes to discharge its emissions into Camden Bay during the summer months. During that time, the water column in the Bay is stratified, with warmer, fresher water forming an upper layer and cooler, saltier water forming a lower layer. The stratification affects the manner in which discharges will disperse. Shell intends to discharge much of its waste into the shallow upper, fresh section of the ocean. The stratification will maintain the discharges in the shallow upper section of the ocean, where they are most likely to encounter marine mammals such as bowheads. EPA did not take into account the stratified water column that exists in Camden Bay in assessing whether discharges would cause unreasonable degradation.

As illustrated above, the location of the proposed discharges, the size of the discharges, and the toxic nature of the pollutants indicate that this proposed discharges are a significant source of pollution. *See* 40 C.F.R. § 122.28(b)(3). Based on this conclusion, we submit this petition to request that EPA use individual permit processes to control Shell’s discharges.

Sincerely,

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